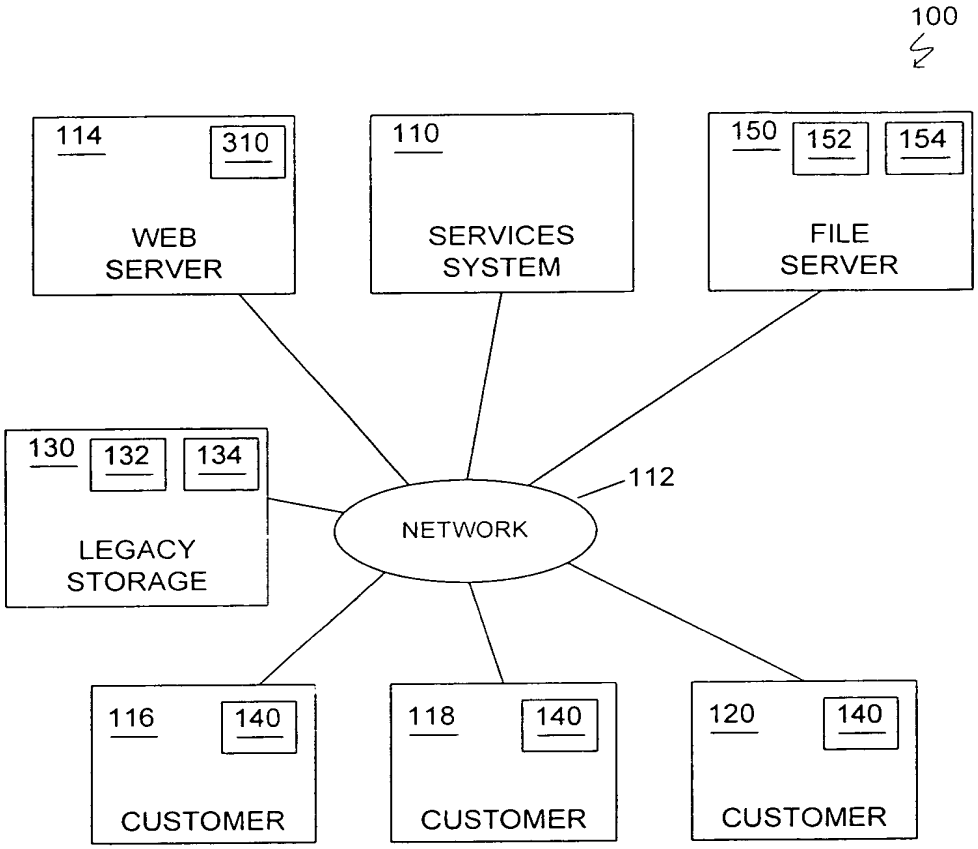
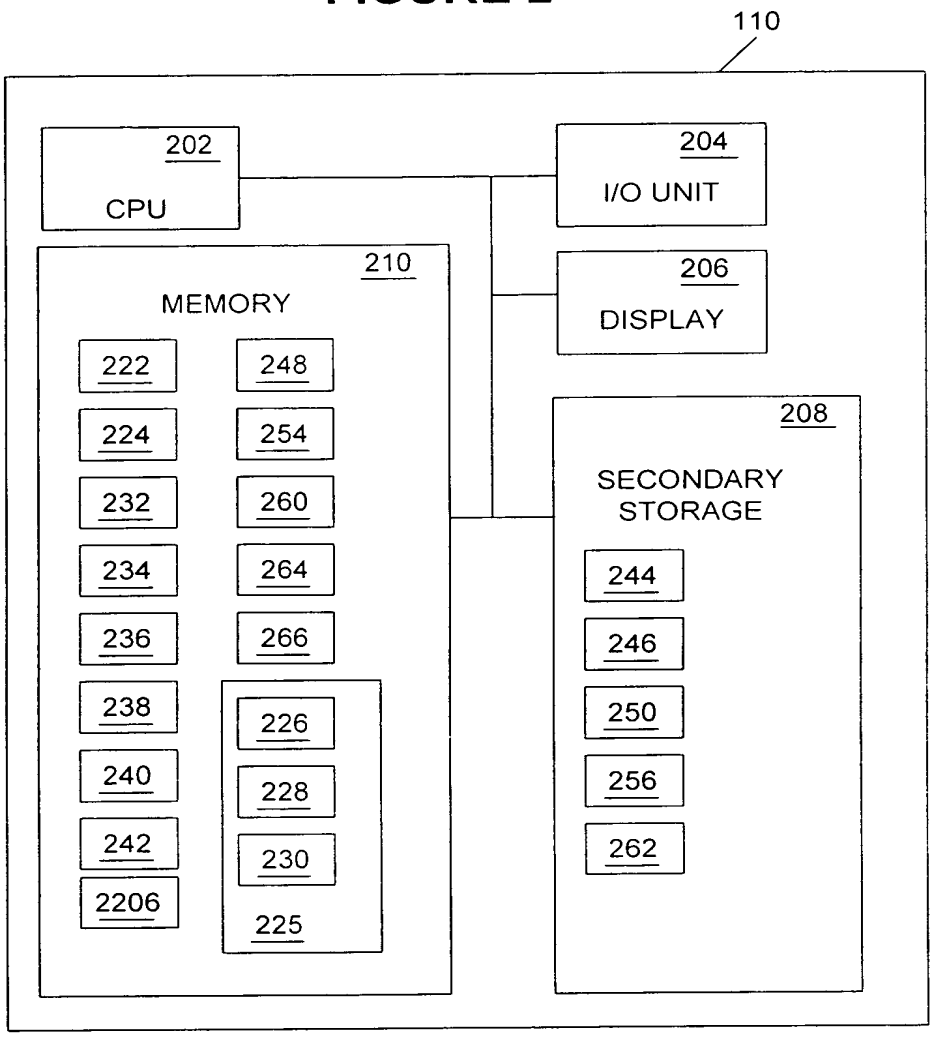
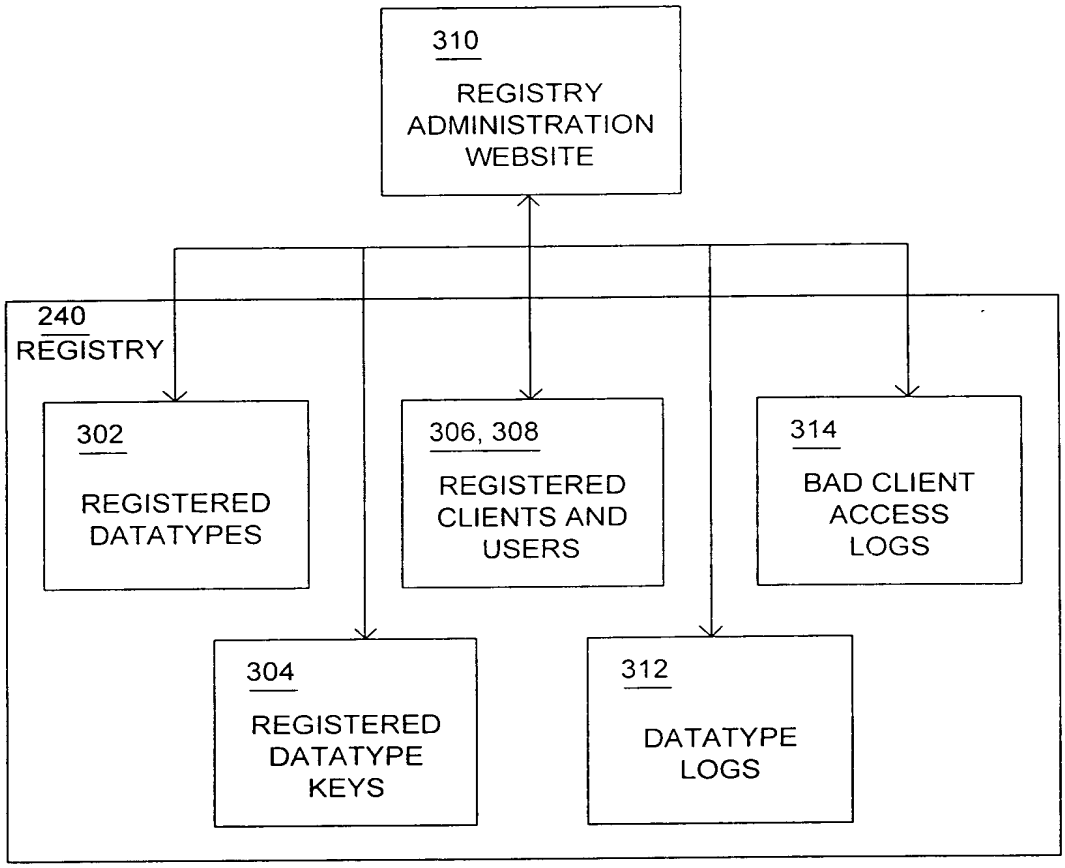
# FIGURE 1


100
114
310
WEB SERVER
110
SERVICES SYSTEM
150
152
154
FILE SERVER
130
132
134
LEGACY STORAGE
NETWORK
112
116
140
CUSTOMER
118
140
CUSTOMER
120
140
CUSTOMER

# FIGURE 2


110
202
CPU
204
I/O UNIT
210
MEMORY
206
DISPLAY
222
248
224
254
232
260
234
264
236
266
238
226
240
228
242
230
2206
225
208
SECONDARY STORAGE
244
246
250
256
262

# FIGURE 3


310
REGISTRY ADMINISTRATION WEBSITE
240
REGISTRY
302
REGISTERED DATATYPES
306, 308
REGISTERED CLIENTS AND USERS
314
BAD CLIENT ACCESS LOGS
304
REGISTERED DATATYPE KEYS
312
DATATYPE LOGS

# FIGURE 4

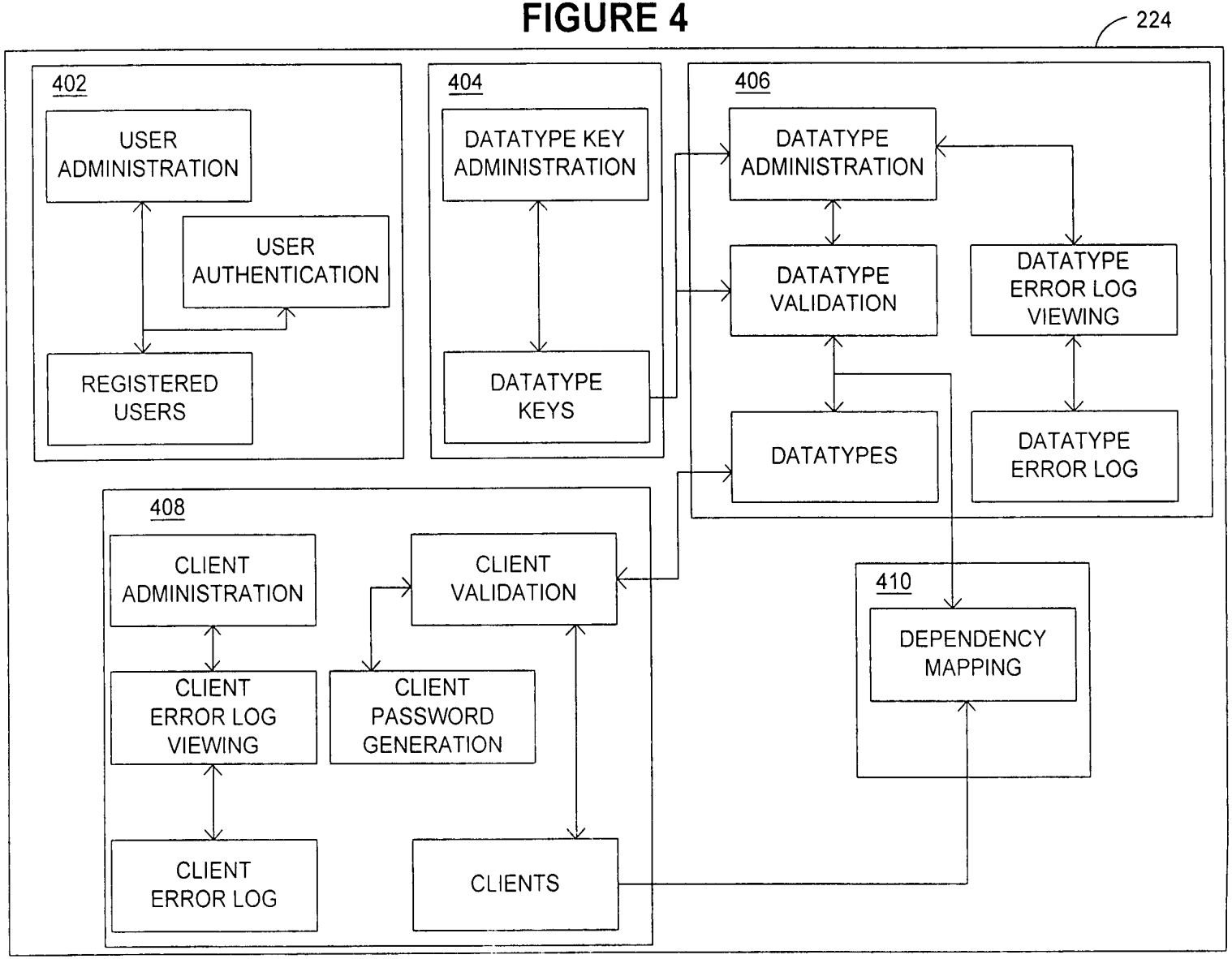

224
402
USER ADMINISTRATION
USER AUTHENTICATION
REGISTERED USERS
404
DATATYPE KEY ADMINISTRATION
DATATYPE KEYS
406
DATATYPE ADMINISTRATION
DATATYPE VALIDATION
DATATYPE ERROR LOG VIEWING
DATATYPES
DATATYPE ERROR LOG
408
CLIENT ADMINISTRATION
CLIENT VALIDATION
CLIENT ERROR LOG VIEWING
CLIENT PASSWORD GENERATION
CLIENT ERROR LOG
CLIENTS
410
DEPENDENCY MAPPING

**FIGURE 5**

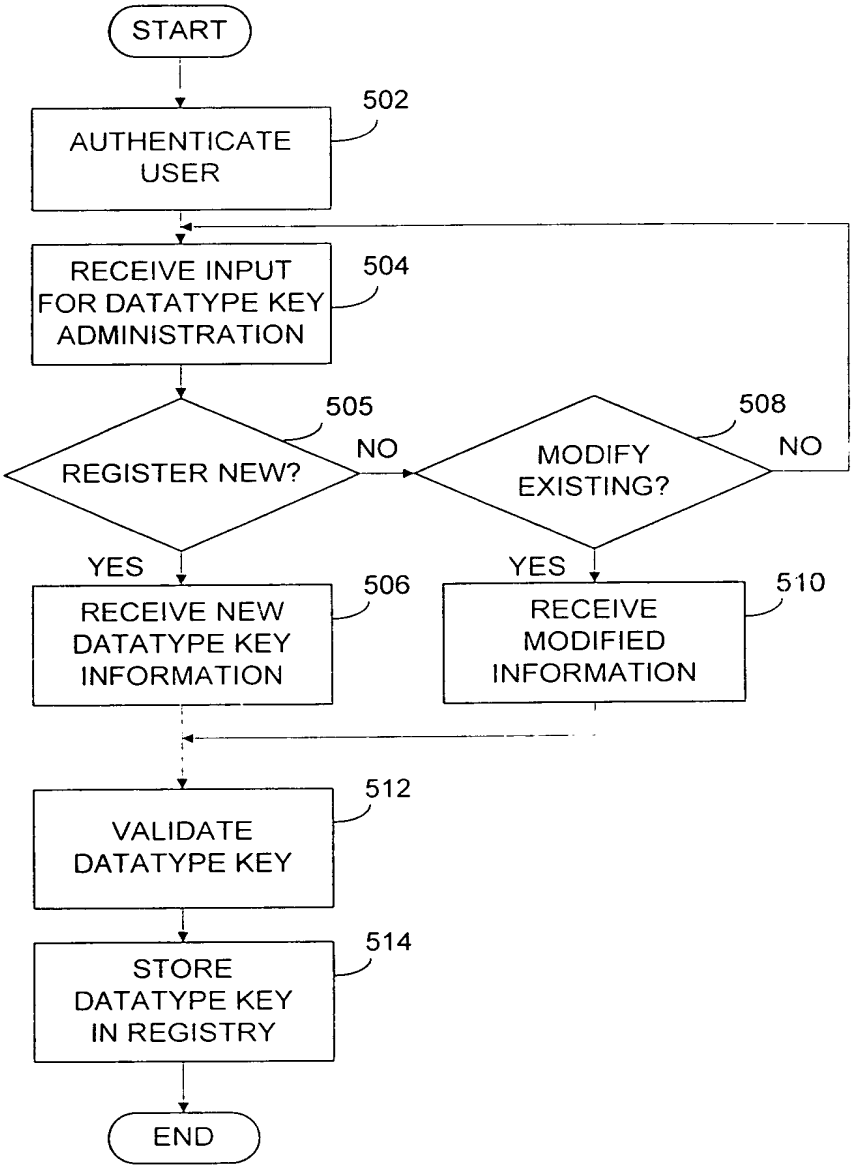

START
AUTHENTICATE USER
502
RECEIVE INPUT FOR DATATYPE KEY ADMINISTRATION
504
REGISTER NEW?
505
NO
MODIFY EXISTING?
508
NO
YES
YES
RECEIVE NEW DATATYPE KEY INFORMATION
506
RECEIVE MODIFIED INFORMATION
510
VALIDATE DATATYPE KEY
512
STORE DATATYPE KEY IN REGISTRY
514
END

**FIGURE 6**

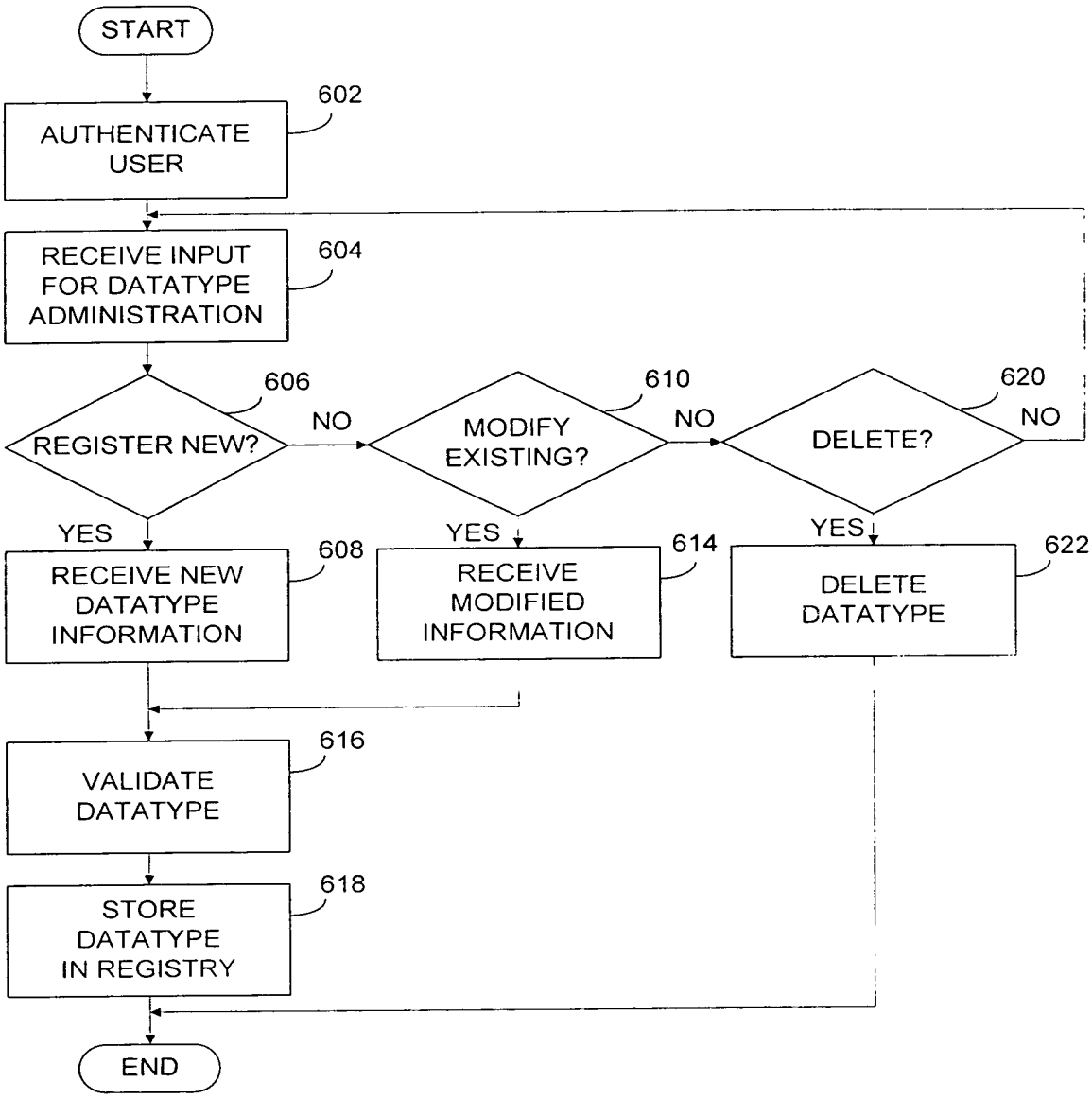

START
AUTHENTICATE USER
602
RECEIVE INPUT FOR DATATYPE ADMINISTRATION
604
REGISTER NEW?
606
NO
MODIFY EXISTING?
610
NO
DELETE?
620
NO
YES
RECEIVE NEW DATATYPE INFORMATION
608
YES
RECEIVE MODIFIED INFORMATION
614
YES
DELETE DATATYPE
622
VALIDATE DATATYPE
616
STORE DATATYPE IN REGISTRY
618
END

**FIGURE 7**

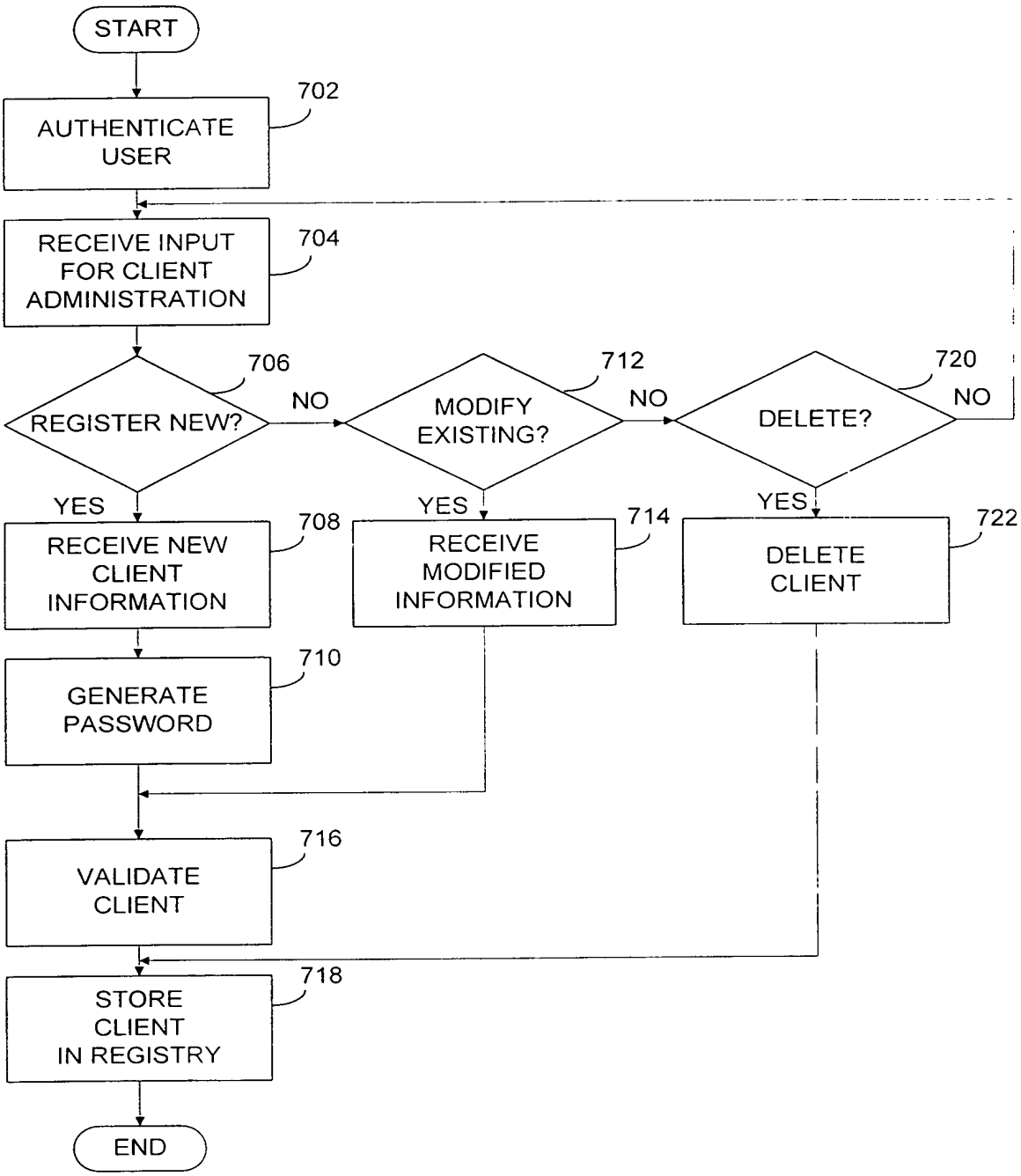
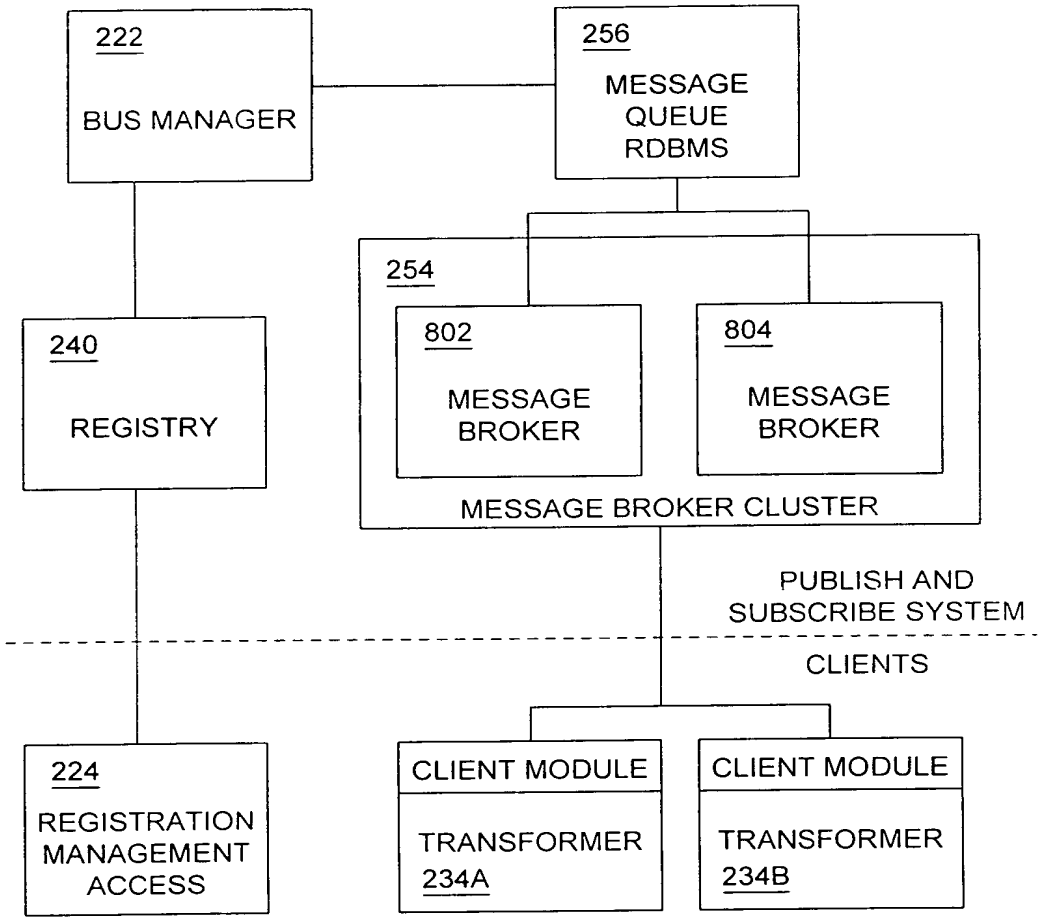

START
AUTHENTICATE USER
702
RECEIVE INPUT FOR CLIENT ADMINISTRATION
704
REGISTER NEW?
706
NO
MODIFY EXISTING?
712
NO
DELETE?
720
NO
YES
RECEIVE NEW CLIENT INFORMATION
708
YES
RECEIVE MODIFIED INFORMATION
714
YES
DELETE CLIENT
722
GENERATE PASSWORD
710
VALIDATE CLIENT
716
STORE CLIENT IN REGISTRY
718
END

FIGURE 8


222
BUS MANAGER
256
MESSAGE QUEUE RDBMS
254
240
REGISTRY
802
MESSAGE BROKER
804
MESSAGE BROKER
MESSAGE BROKER CLUSTER
PUBLISH AND SUBSCRIBE SYSTEM
CLIENTS
224
REGISTRATION MANAGEMENT ACCESS
CLIENT MODULE
TRANSFORMER 234A
CLIENT MODULE
TRANSFORMER 234B

## FIGURE 9

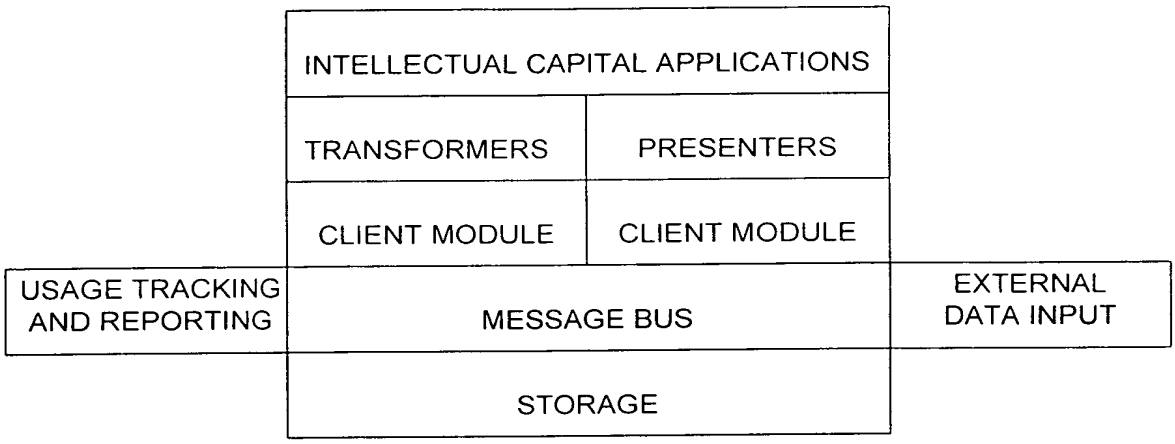

INTELLECTUAL CAPITAL APPLICATIONS
TRANSFORMERS
PRESENTERS
CLIENT MODULE
CLIENT MODULE
USAGE TRACKING AND REPORTING
MESSAGE BUS
EXTERNAL DATA INPUT
STORAGE

**FIGURE 10**

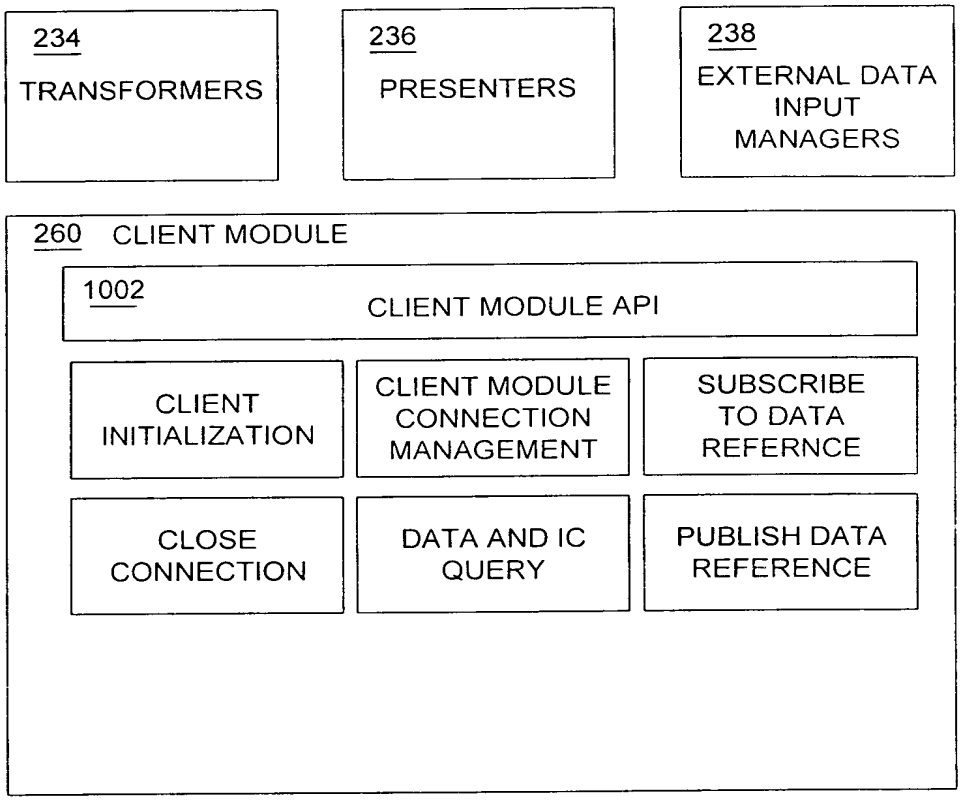

234
TRANSFORMERS
236
PRESENTERS
238
EXTERNAL DATA INPUT MANAGERS
260 CLIENT MODULE
1002
CLIENT MODULE API
CLIENT INITIALIZATION
CLIENT MODULE CONNECTION MANAGEMENT
SUBSCRIBE TO DATA REFERNCE
CLOSE CONNECTION
DATA AND IC QUERY
PUBLISH DATA REFERENCE

**FIGURE 11**

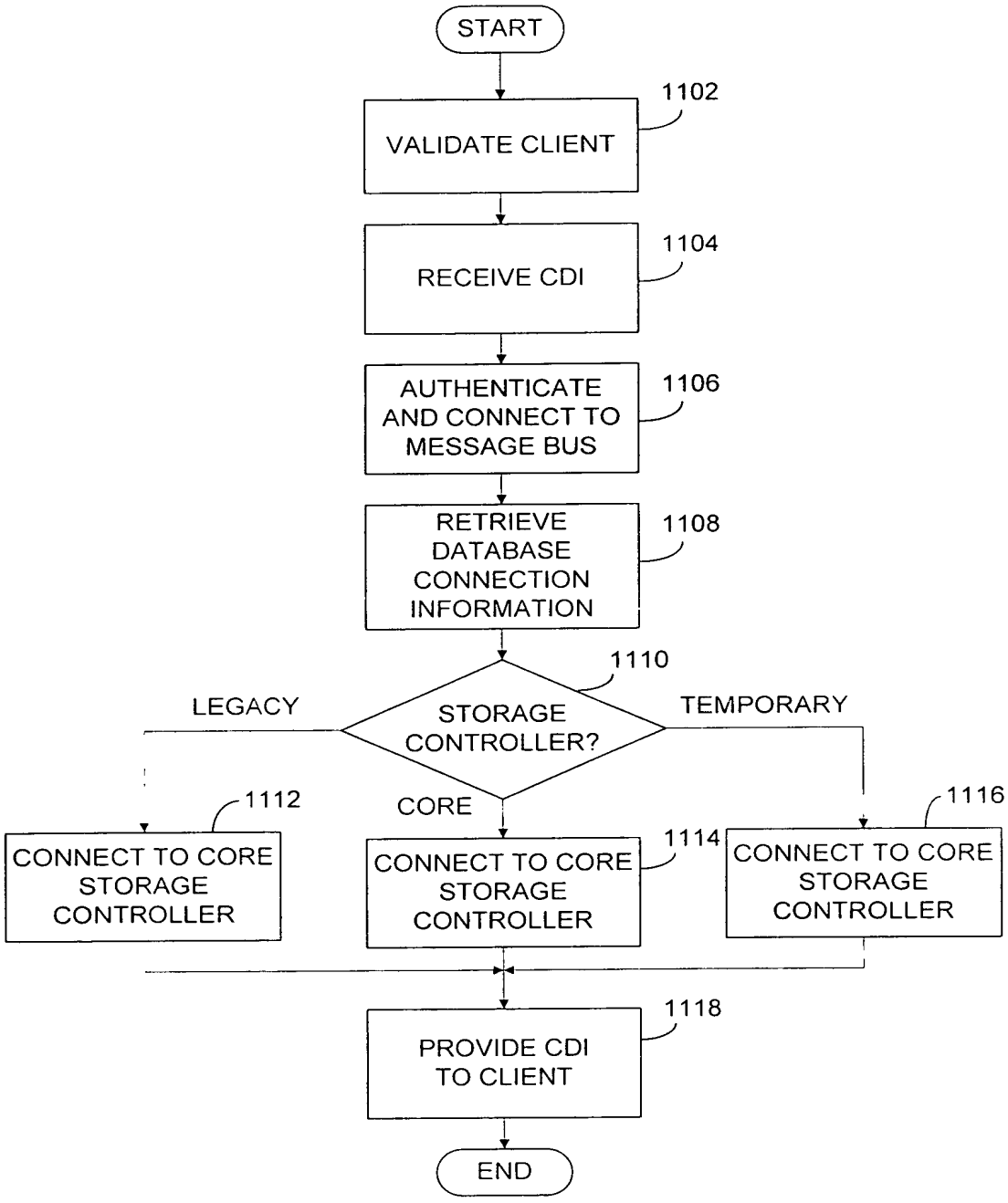

START
VALIDATE CLIENT
1102
RECEIVE CDI
1104
AUTHENTICATE AND CONNECT TO MESSAGE BUS
1106
RETRIEVE DATABASE CONNECTION INFORMATION
1108
STORAGE CONTROLLER?
1110
LEGACY
CORE
TEMPORARY
CONNECT TO CORE STORAGE CONTROLLER
1112
CONNECT TO CORE STORAGE CONTROLLER
1114
CONNECT TO CORE STORAGE CONTROLLER
1116
PROVIDE CDI TO CLIENT
1118
END

FIGURE 12

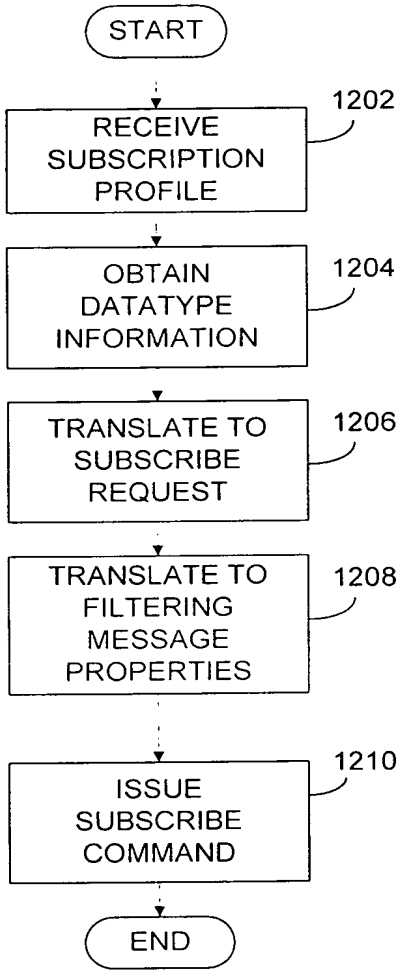

START
RECEIVE SUBSCRIPTION PROFILE
1202
OBTAIN DATATYPE INFORMATION
1204
TRANSLATE TO SUBSCRIBE REQUEST
1206
TRANSLATE TO FILTERING MESSAGE PROPERTIES
1208
ISSUE SUBSCRIBE COMMAND
1210
END

FIGURE 13

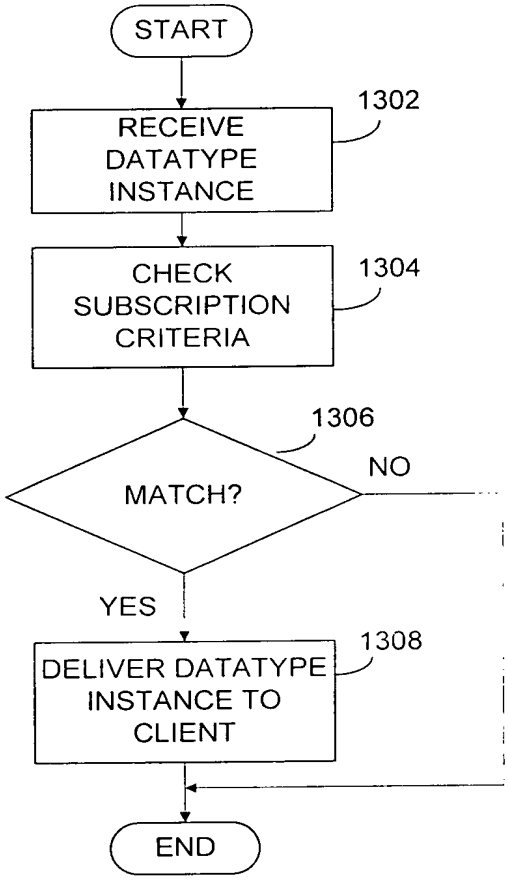

START
RECEIVE DATATYPE INSTANCE
1302
CHECK SUBSCRIPTION CRITERIA
1304
MATCH?
1306
NO
YES
DELIVER DATATYPE INSTANCE TO CLIENT
1308
END

**FIGURE 14**

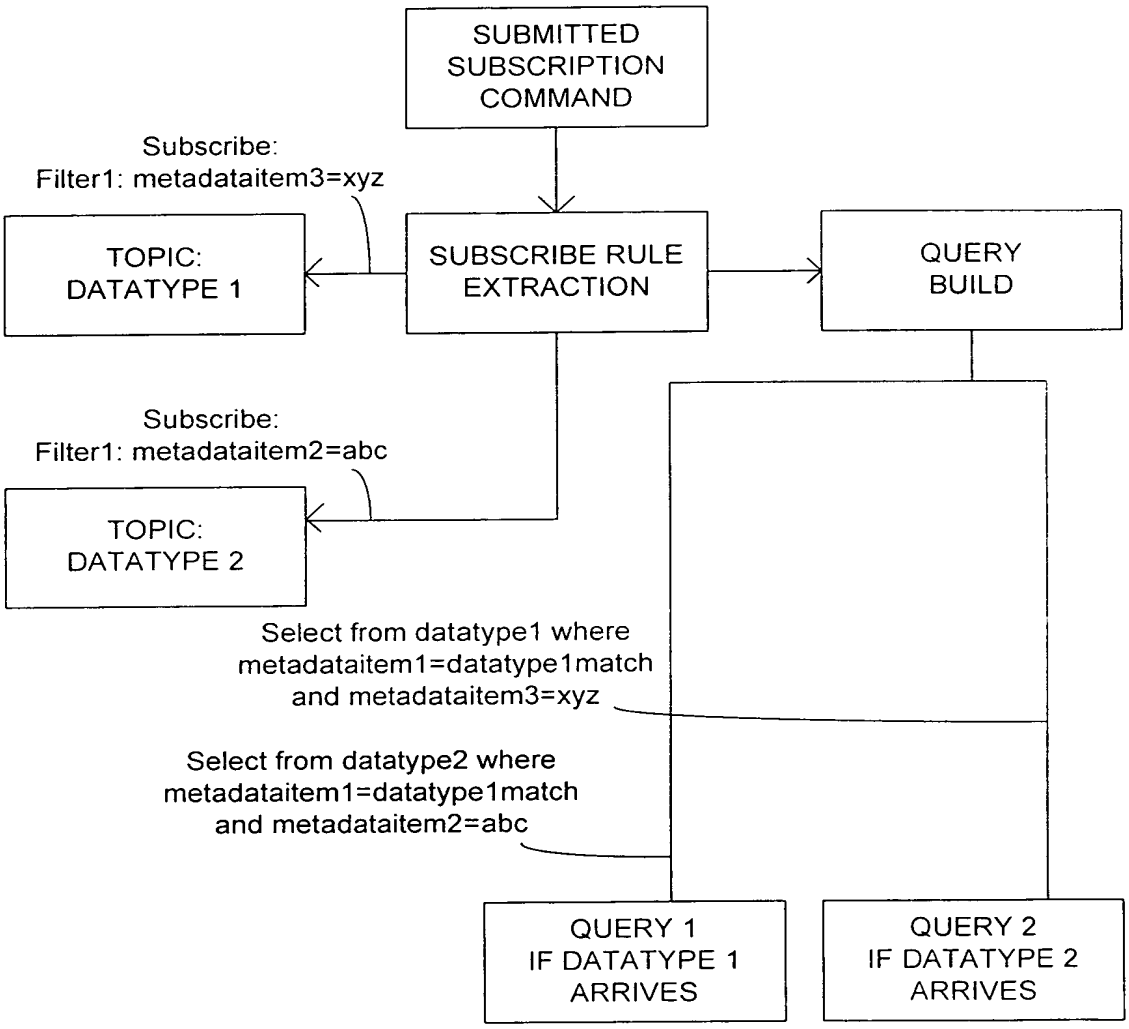

SUBMITTED SUBSCRIPTION COMMAND
Subscribe: Filter1: metadataitem3=xyz
TOPIC: DATATYPE 1
SUBSCRIBE RULE EXTRACTION
QUERY BUILD
Subscribe: Filter1: metadataitem2=abc
TOPIC: DATATYPE 2
Select from datatype1 where metadataitem1=datatype1match and metadataitem3=xyz
Select from datatype2 where metadataitem1=datatype1match and metadataitem2=abc
QUERY 1 IF DATATYPE 1 ARRIVES
QUERY 2 IF DATATYPE 2 ARRIVES

FIGURE 15

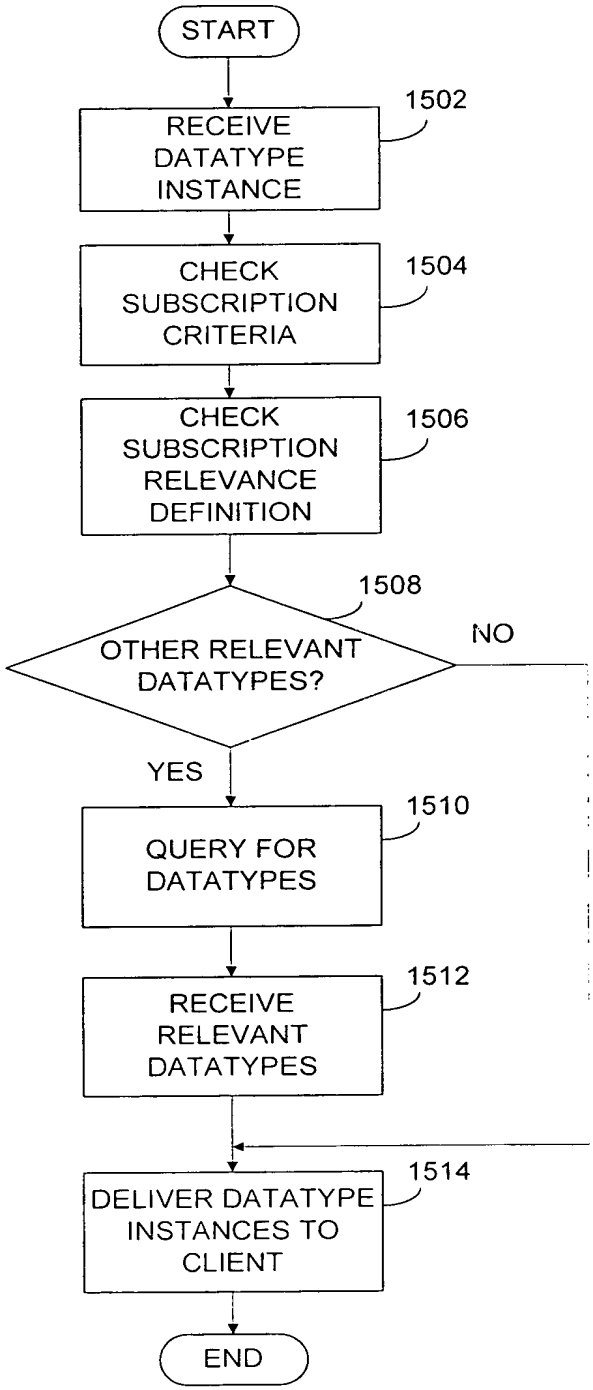
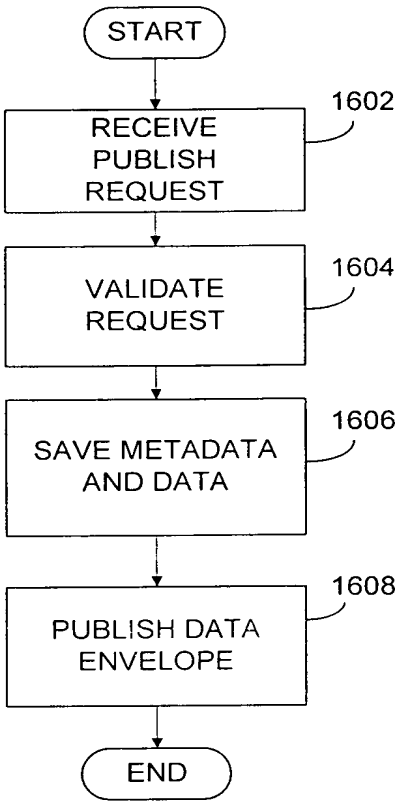

START
RECEIVE DATATYPE INSTANCE
1502
CHECK SUBSCRIPTION CRITERIA
1504
CHECK SUBSCRIPTION RELEVANCE DEFINITION
1506
OTHER RELEVANT DATATYPES?
1508
NO
YES
QUERY FOR DATATYPES
1510
RECEIVE RELEVANT DATATYPES
1512
DELIVER DATATYPE INSTANCES TO CLIENT
1514
END

FIGURE 16


START
RECEIVE PUBLISH REQUEST
1602
VALIDATE REQUEST
1604
SAVE METADATA AND DATA
1606
PUBLISH DATA ENVELOPE
1608
END

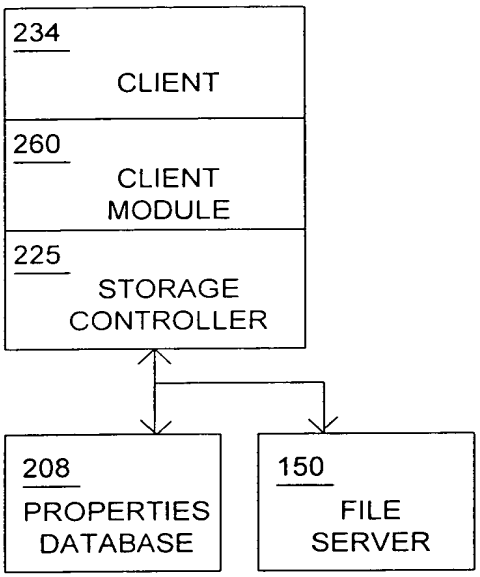



FIGURE 17A

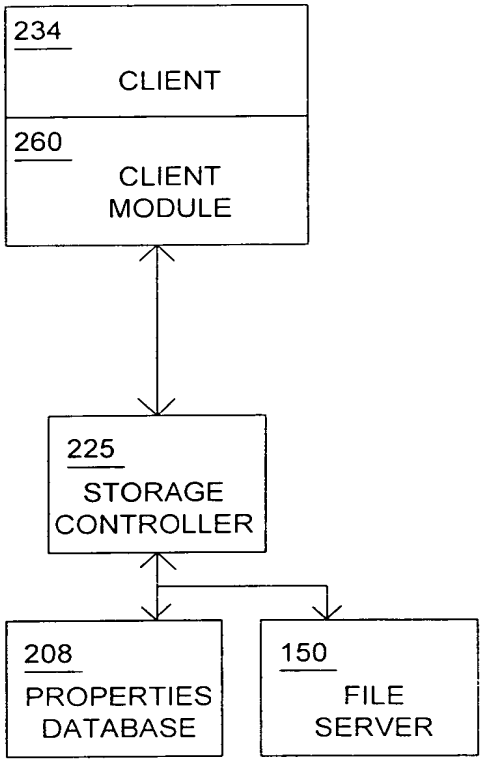



FIGURE 17B

FIGURE 18

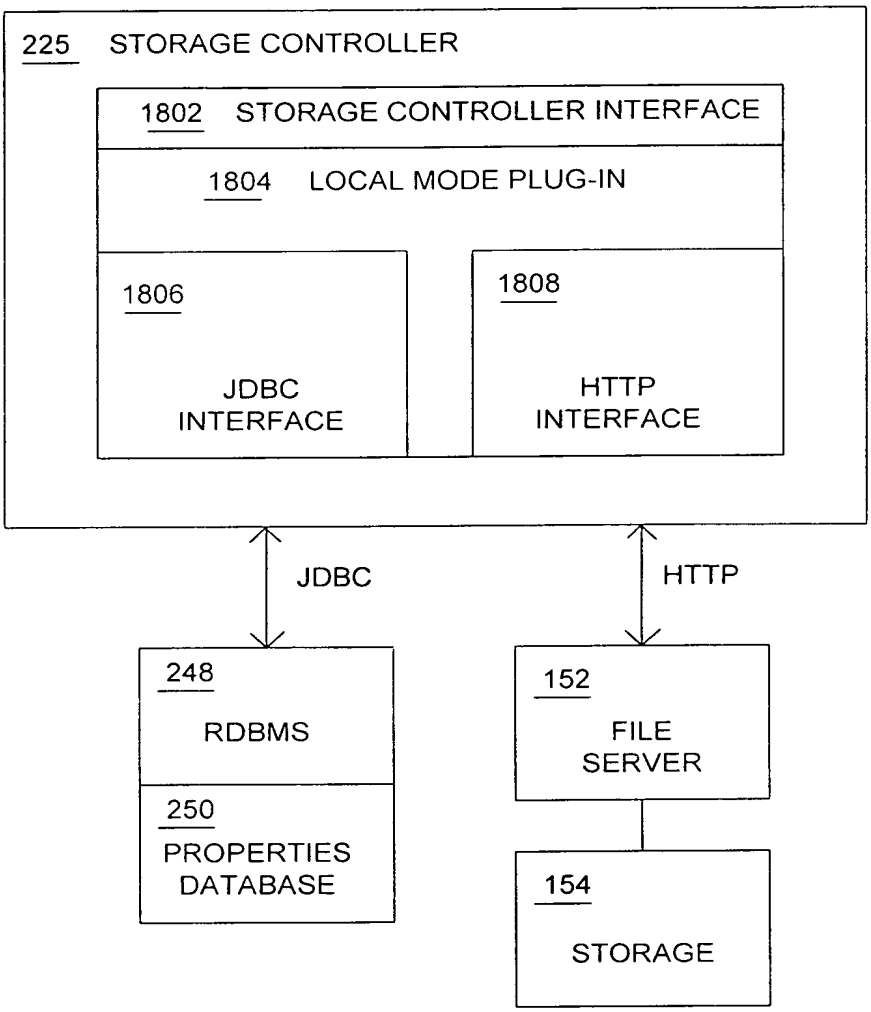

225 STORAGE CONTROLLER
1802 STORAGE CONTROLLER INTERFACE
1804 LOCAL MODE PLUG-IN
1806
JDBC INTERFACE
1808
HTTP INTERFACE
JDBC
HTTP
248
RDBMS
250
PROPERTIES DATABASE
152
FILE SERVER
154
STORAGE

**FIGURE 19**

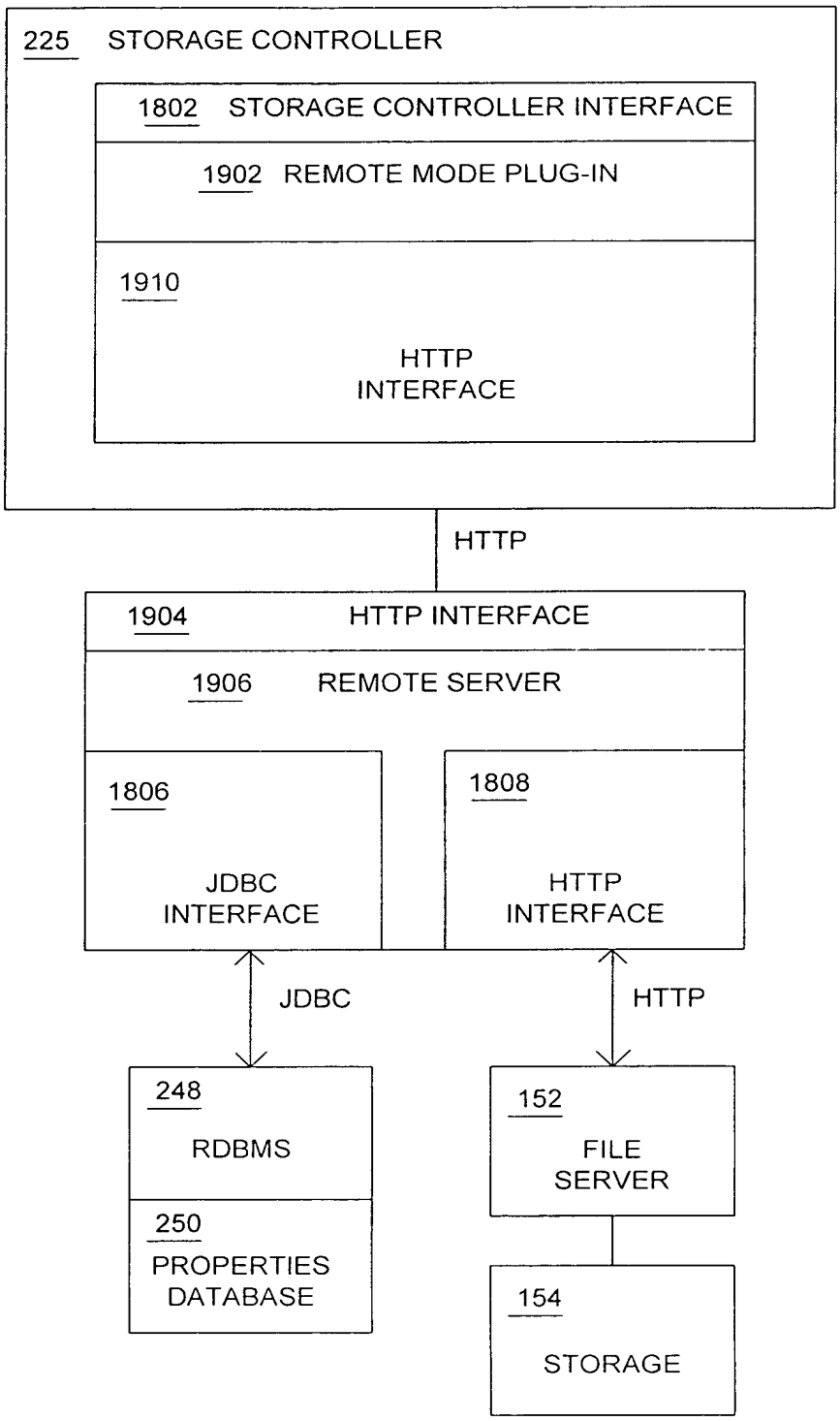

225 STORAGE CONTROLLER
1802 STORAGE CONTROLLER INTERFACE
1902 REMOTE MODE PLUG-IN
1910
HTTP INTERFACE
HTTP
1904 HTTP INTERFACE
1906 REMOTE SERVER
1806
JDBC INTERFACE
1808
HTTP INTERFACE
JDBC
HTTP
248
RDBMS
250
PROPERTIES DATABASE
152
FILE SERVER
154
STORAGE

**FIGURE 20**

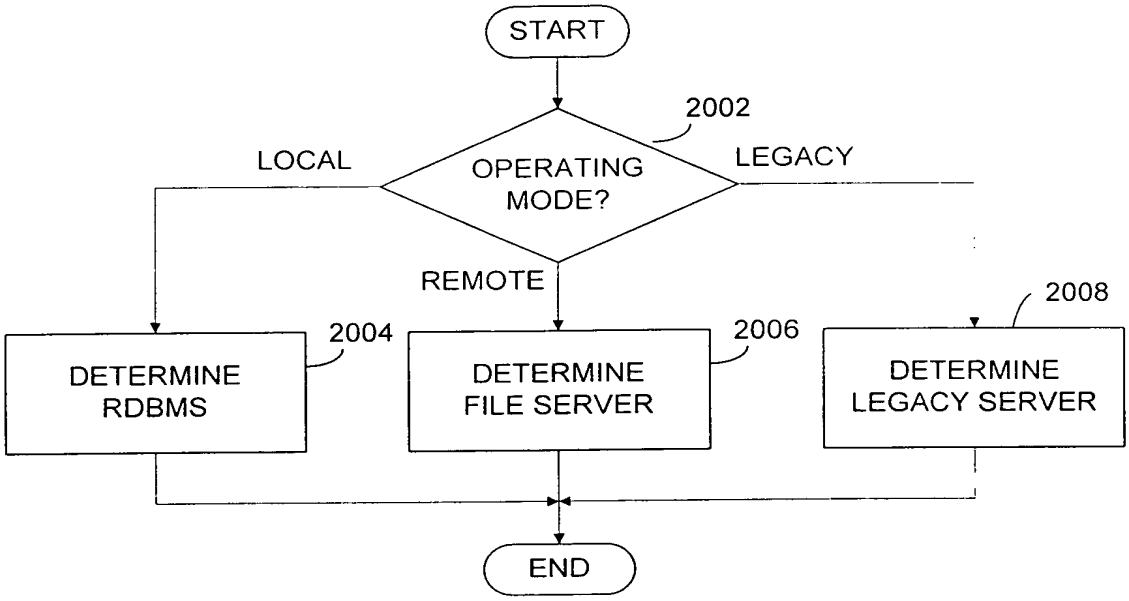

START
2002
OPERATING MODE?
LOCAL
LEGACY
REMOTE
2004
DETERMINE RDBMS
2006
DETERMINE FILE SERVER
2008
DETERMINE LEGACY SERVER
END

**FIGURE 21**

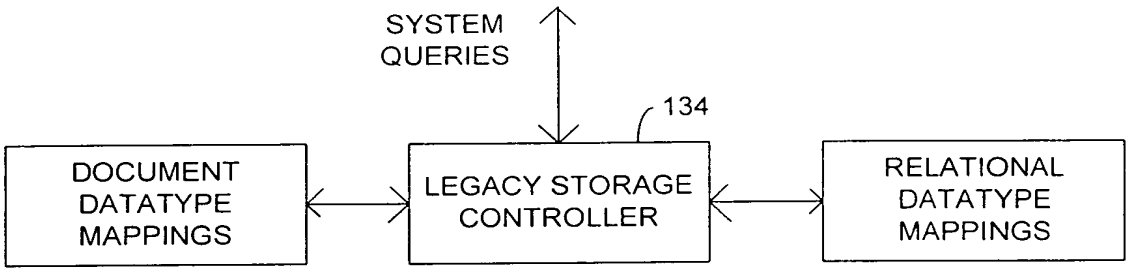

SYSTEM
QUERIES
134
DOCUMENT
DATATYPE
MAPPINGS
LEGACY STORAGE
CONTROLLER
RELATIONAL
DATATYPE
MAPPINGS

FIGURE 22

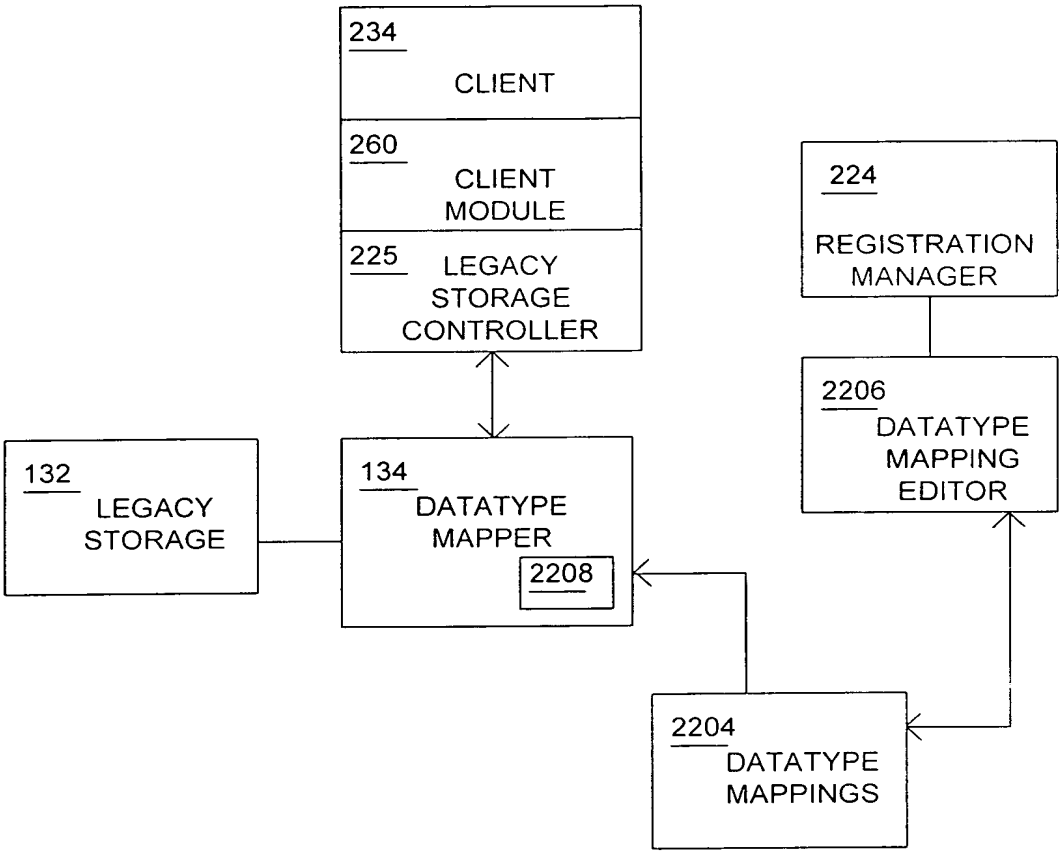

234
CLIENT
260
CLIENT MODULE
225
LEGACY STORAGE CONTROLLER
224
REGISTRATION MANAGER
2206
DATATYPE MAPPING EDITOR
132
LEGACY STORAGE
134
DATATYPE MAPPER
2208
2204
DATATYPE MAPPINGS

FIGURE 23

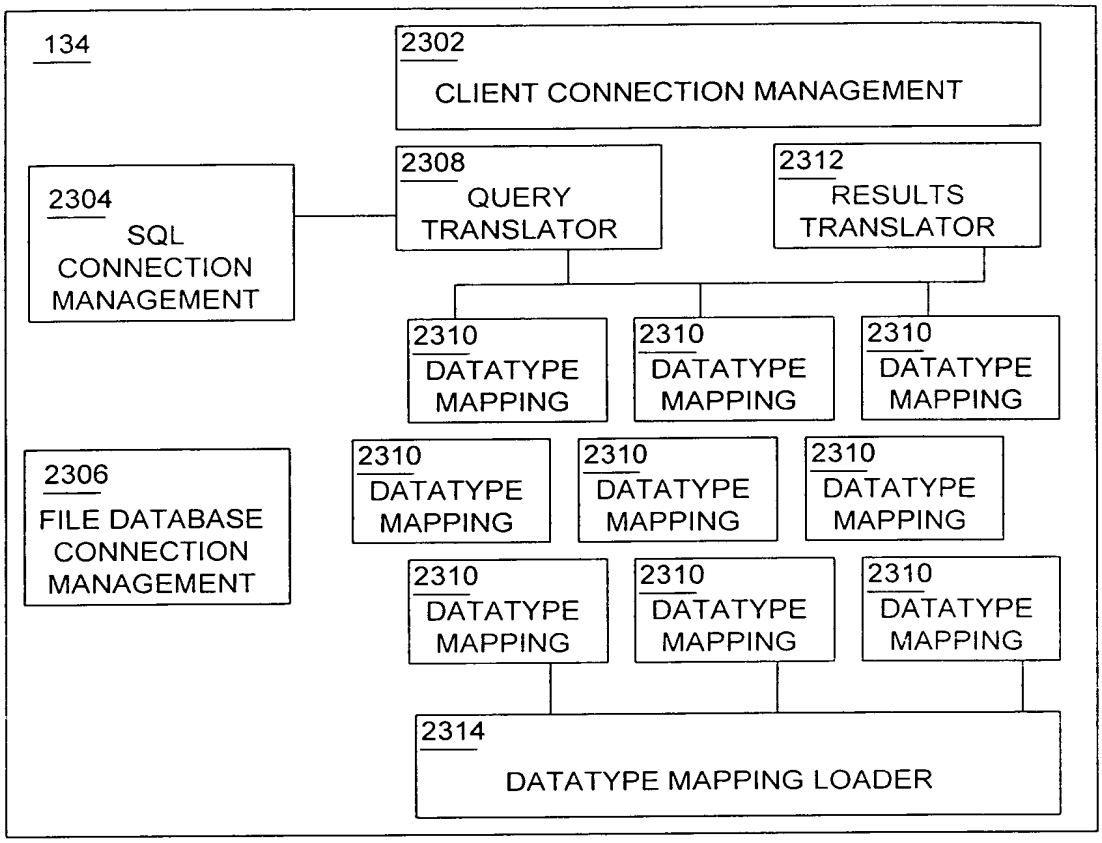

134
2302
CLIENT CONNECTION MANAGEMENT
2304
SQL CONNECTION MANAGEMENT
2308
QUERY TRANSLATOR
2312
RESULTS TRANSLATOR
2310
DATATYPE MAPPING
2310
DATATYPE MAPPING
2310
DATATYPE MAPPING
2306
FILE DATABASE CONNECTION MANAGEMENT
2310
DATATYPE MAPPING
2310
DATATYPE MAPPING
2310
DATATYPE MAPPING
2310
DATATYPE MAPPING
2310
DATATYPE MAPPING
2310
DATATYPE MAPPING
2314
DATATYPE MAPPING LOADER

**FIGURE 24**

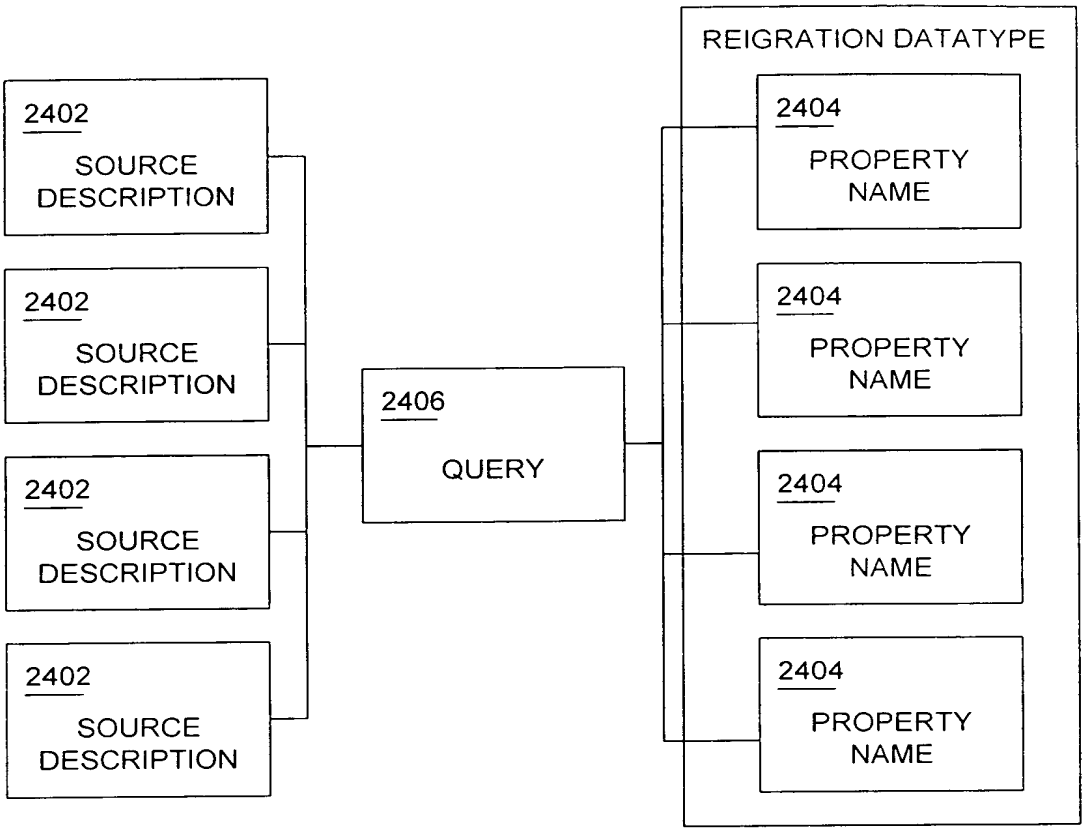

REIGRATION DATATYPE
2402
SOURCE DESCRIPTION
2402
SOURCE DESCRIPTION
2402
SOURCE DESCRIPTION
2402
SOURCE DESCRIPTION
2406
QUERY
2404
PROPERTY NAME
2404
PROPERTY NAME
2404
PROPERTY NAME
2404
PROPERTY NAME

FIGURE 25

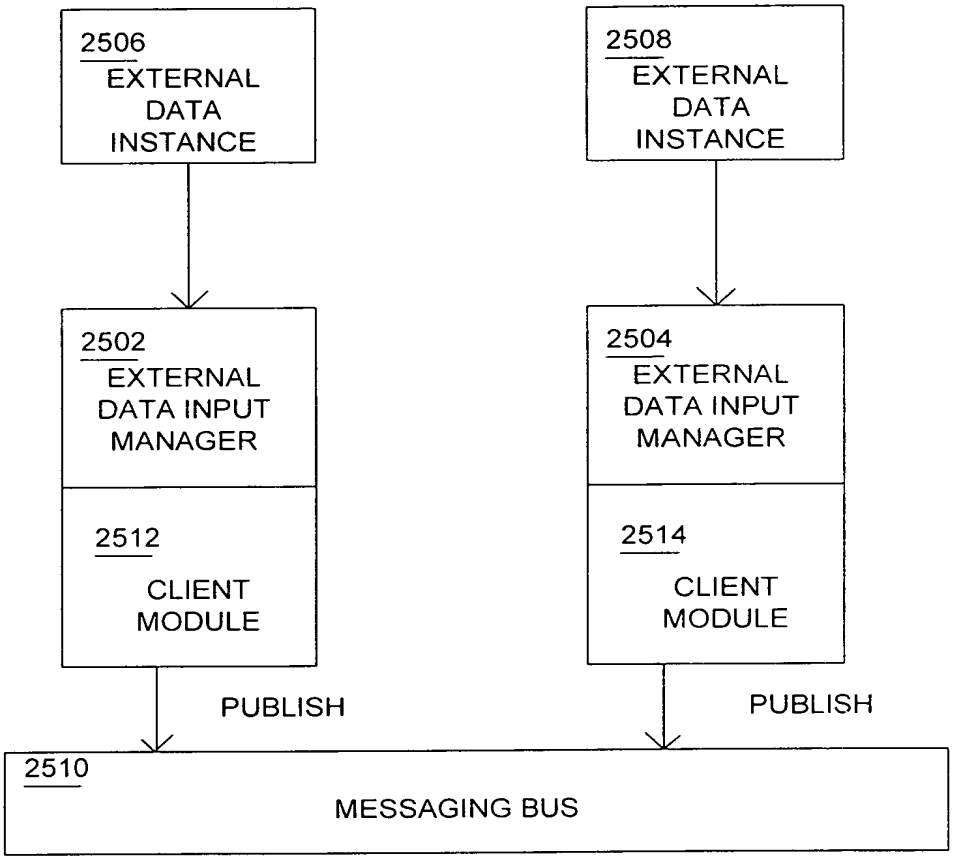
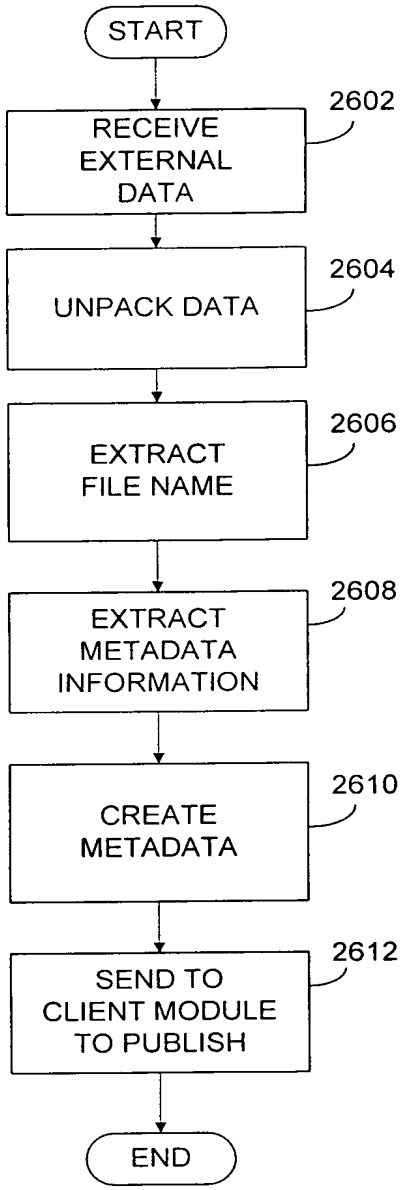

2506
EXTERNAL DATA INSTANCE
2508
EXTERNAL DATA INSTANCE
2502
EXTERNAL DATA INPUT MANAGER
2504
EXTERNAL DATA INPUT MANAGER
2512
CLIENT MODULE
2514
CLIENT MODULE
PUBLISH
PUBLISH
2510
MESSAGING BUS

FIGURE 26


START
RECEIVE EXTERNAL DATA
2602
UNPACK DATA
2604
EXTRACT FILE NAME
2606
EXTRACT METADATA INFORMATION
2608
CREATE METADATA
2610
SEND TO CLIENT MODULE TO PUBLISH
2612
END